

REMARKS

Claims 1, 2, 4, 5, and 9 are pending in this application, of which claim 1 is independent.

Claims 1, 2, 4, 5, and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over De Poorter (U.S. Patent No. 5,578,863) in view of Onomura et al. (U.S. Publication No. 2002/0039374) and T. Tojyo et al., "High-Power AlGaInN Laser Diodes with High Kink Level and Low Relative Intensity Noise," Jpn. J. Appl. Phys, Vol. 41, pps 1829-1833, 2002 ("Tojyo"). Applicants respectfully traverse this rejection.

De Poorter, Onomura, and Tojyo, individually or in combination, do not disclose or suggest a semiconductor laser device including all the limitations recited in independent claim 1. Specifically, the applied combination of the references does not teach, among other things, "a rated output power of the semiconductor laser device is 30 mW or more, and an atmospheric gas inside the package is a mixture gas containing oxygen and nitrogen, with an oxygen content of more than 20%, and the semiconductor laser device has a MTTF of 3,000 hours or more at 70°C," as recited in independent claim 1.

In the Office Action, the Examiner specifically asserted as follows:

Tojyo et al. disclose: AlGaInN laser device with mean time to failure of more than 15,000 hours under 30mW continuous wave operation at 60°C (page 1829, abstract). It would have been obvious to one having ordinary skill in the art at the time the invention was made use the laser device of Tojyo et al. in the invention of De Poorter and operating it at 70°C since it was known in the art that a laser with a high mean time to failure is desired.

Applicants respectfully disagree with the Examiner's position on Tojyo for the reasons set forth below.

Tojyo in the abstract mentions an MTTF of 15,000 hours at 30 mW, 60°C. By contrast, the claimed semiconductor laser device has an MTTF of 3,000 hours or more at 30 mW, 70°C.

It is known that a semiconductor device may stop operating abruptly at a temperature higher than its maximum operating temperature. Thus, the fact that a semiconductor device can operate at 60°C does not guarantee that it can operate at 70°C as well. Since Tojyo teaches no MTTF at 70°C, the devices described in Tojyo may not be usable in appliances that are exposed to high temperatures, such as vehicle-mounted appliances and slim-type personal computers.

The claimed semiconductor laser device, by contrast, has the extra advantage of being usable in appliances exposed to high temperatures, and therefore cannot easily be conceived in light of De Poorter and Onomura in view of Tojyo. Applicants emphasize that the Examiner did not provide any reason as to why the MTTF at 70°C is obvious, i.e., did not provide any evidential support for the assertion that the MTTF at 70°C is obvious. Tojyo does not indicate 70°C, but merely 60°C. The assertion “a laser with a high mean time to failure is desired” does not provide any reason as to why the MTTF at 70°C is obvious. It is, therefore, apparent that a *prima facie* basis to deny patentability to the claimed subject matter has not been established in the present Office Action.

Based on the foregoing, De Poorter, Onomura, and Tojyo, individually or in combination, do not disclose or suggest a semiconductor laser device including all the limitations recited in independent claim 1. Dependent claims 2, 4, 5, and 9 are also patentably distinguishable over De Poorter, Onomura, and Tojyo at least because these claims include all the limitations recited in claim 1. Applicants, therefore, respectfully solicit withdrawal of the rejection of the claims and favorable consideration thereof.

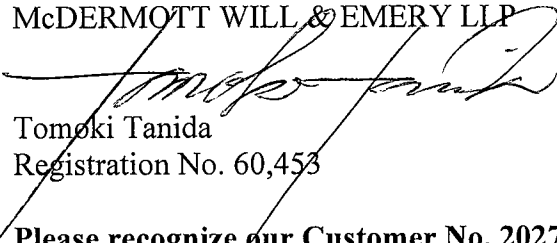
Conclusion

If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP


Tomoki Tanida
Registration No. 60,453

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 SAB:TT:amz
Facsimile: 202.756.8087
Date: May 22, 2009

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